

**REMARKS**

Claims 8, 10-12, 14, 17, 18, 20, 22, 24, 26, 28 and 30-49 are pending in this application. By this Amendment, claims 8, 14, 17, 20, 22, 24, 26, 28 and 30 are amended. The amendments introduce no new matter. A Request for Continued Examination is attached. Reconsideration of the application based on the above amendments and the following remarks is respectfully requested.

The Office Action, on page 2, rejects claims 8, 10, 11, 14, 20, 22, 31-35 and 38-41 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,462,590 to Yui et al. (hereinafter "Yui") in view of U.S. Patent No. 5,897,695 to Mayo et al. (hereinafter "Mayo"). The Office Action, on page 6, rejects claim 12 under 35 U.S.C. §103(a) as being unpatentable over Yui and Mayo in view of U.S. Patent Application Publication No. 2002/0050226 to Oki et al. (hereinafter "Oki"). The Office Action, on page 7, rejects claims 17, 18, 24, 36, 37, 42 and 43 under 35 U.S.C. §103(a) as being unpatentable over Yui and Mayo in view of U.S. Patent No. 6,471,348 to Koitabashi. The Office Action, on page 11, rejects claims 26, 28 and 44-47 under 35 U.S.C. §103(a) as being unpatentable over Yui and Mayo in view of U.S. Patent No. 6,387,506 to Kawamura et al. (hereinafter "Kawamura"). The Office Action, on page 13, rejects claims 30, 48 and 49 under 35 U.S.C. §103(a) as being unpatentable over Yui in view of Mayo, Koitabashi and Kawamura. These rejections are respectfully traversed.

Without conceding the propriety of these rejections, and solely to advance prosecution of this application, claims 8, 14, 17, 20, 22, 24, 26, 28 and 30 are amended to recite, among other features, the colorant is a self-dispersing pigment. The applied references do not teach, nor can they reasonably be considered to have suggested, this feature, along with the other combinations of features recited in the independent claims.

The applied references also do not teach, nor can they reasonably be considered to have suggested, wherein a content of the amine compound is in a range of 13-30% by mass,

as recited in claims 8, 14, 17, 20, 22, 24, 26, 28 and 30. The Office Action concedes that Yui does not teach this feature. To cure this deficiency, the Office Action asserts that Mayo teaches this feature and summarily concludes that one of ordinary skill in the art would have been motivated to combine Yui and Mayo in a manner to render obvious at least this feature. The analysis of the Office Action fails for at least the following reasons.

Mayo does not explicitly recite the claimed range. The Office Action, in the Response to Arguments, asserts that Mayo discloses that the amine compound can be in the range of 1-50%. Mayo, however, does not disclose that the amine compound is in a range of 1-50% with respect to the total ink composition. Mayo teaches an ink wherein said amine is present in an amount of from about 0.01 to about 50, and preferably from about 0.1 to about 5 weight percent of said carbon block (col. 4, lines 35-39). Thus, Mayo actually teaches the range of the amine compound relative to the carbon block and not the total ink composition. Further, Mayo teaches that the inks can be formulated by adding the amine and carbon block to water such that there is formed a weak network of interaction between the carbon block particles and the amine (col. 1, lines 12-15). In other words, Mayo does not even contemplate defining the range of the amine compound relative to the total ink composition, but rather, relative to only the carbon block as it relates to the disclosed importance of forming a weak network interaction between the carbon block particles and the amine.

The Office Action, in the Response to Arguments, further asserts that it is well known in the art to use different amines in an ink as well as different amounts of amines as allegedly shown by Mayo such that it would have been obvious for one of ordinary skill in the art to modify Mayo to render obvious the subject matter of the pending claims. However, as discussed above, it is unreasonable to assert that one of ordinary skill in the art would have been motivated to modify Mayo in such a manner at least because Mayo does not contemplate the concentration of amines relative to the total ink composition. Mayo, in this regard, is

directed to the importance of forming a weak network interaction between the carbon block particles and the amine, and not the total concentration.

Further, Yui and Mayo are not combinable in the manner suggested by the Office Action. Yui is directed to an ink and method for printing for preventing the change of the amount of ink droplets due to kognition on a heater and preventing corrosion of materials in contact with the ink as well as preventing the clogging of a print head (Abstract). Mayo is directed to providing an ink jet composition with certain pigments having associated amines that possess high viscosities prior to shearing, low viscosity during shearing, and a rapid return to high viscosity after shearing (col. 3, lines 27-33). These effects are contrary to the nature of the compositions disclosed by Yui. For example, Yui teaches that the functional groups associated with the amine compound include a hydroxide group or a carbonyl group. The use of a hydroxyl group, however, would frustrate the formation of a weak network of interaction between the amine and carbon blocks disclosed by Mayo. For at least this reason, one of ordinary skill in the art would not have been motivated to combine the specified compositions and ranges disclosed in Mayo with Yui to predictably arrive at the combination of features recited in the pending claims.

Similarly, for at least the above reason, one of ordinary skill in the art could not have expected a reasonable expectation of success in combining these references at least because such compositions disclosed by Yui would clearly frustrate the stated objective of Mayo.

To any extent that Mayo does teach a comparable and overlapping range as that recited in the pending claims, Applicant has adequately established unexpected results and the criticality of the claimed range over the applied references. For example, on pages 33 and 34 of the specification, Applicant discloses that the  $-CO_2M$  or  $-SO_3M$  group contained in the amine molecule inhibits the colorant from stably dispersing at the portions where the concentration of the amine molecules is high in the ink droplets, and accelerates coagulation

of the coloring. Applicant further discloses that due to this phenomenon, the colorant becomes more likely to remain on the surface of the recording medium to improve the image density. Further, Applicant discusses on at least page 27 of the specification that the curl-preventing effect cannot be obtained when the content of the amine compound represented by the formula (1) is less than 10% by mass and then clogging occurs when the content exceeds 30% by mass. Table 1 provides further support for the criticality of this range. As such, Applicant effectively rebuts any alleged *prima facie* case of obviousness based on these unexpected results.

The other references are not applied in a manner to overcome the above-identified shortfalls in the application of Yui and Mayo to the subject matter of the pending claims.

For at least the above reasons, the references are not combinable in the manner suggested and no permissible combination of the applied references can reasonably be considered to have suggested the combinations of all of the features positively recited in independent claims 8, 14, 17, 20, 22, 24, 26, 28 and 30. Additionally, claims 10-12, 18 and 31-49 also would not have reasonably been suggested by the applied references for at least the respective dependence of these claims on allowable base claims, as well as for the separately patentable subject matter that each of these claims recites.

Accordingly, reconsideration and withdrawal of the rejections of the enumerated claims under 35 U.S.C. §103(a) as being unpatentable over the various combinations of the applied references are respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 8, 10-12, 14, 17, 18, 20, 22, 24, 26, 28 and 30-49 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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JAO:CJW/clf

Attachment:

Request for Continued Examination

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